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Marine Casualty Investigations

Enquêtes sur les accidents maritimes

Investigation Report to the Minister pursuant to sections 477 or 480 of the Canada Shipping Act (1985)

Rapport d'investigation au Ministre conformément aux articles 477 ou 480 de la Loi sur la marine marchande du Canada (1985)

Canada

- E R R A T A -

91-00552/

THE FOLLOWING
CORRECTIONS MUST BE
MADE TO THIS REPORT
NO. 545

	Change	To
Page 21 - Paragraph 5 - Line 9	1200	1500
Page 21 - Paragraph 5 - Line 10	1800	2100

Marine Casualty Investigations
110 O'Connor Street
Ottawa, Ontario
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Ce rapport est aussi disponible en français.

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE COLLISION BETWEEN THE POLISH VESSEL "ZIEMIA OPOLSKA" AND THE CANADIAN FISHING VESSEL "CAPE FOURCHU" AND SUBSEQUENT SINKING OF THE CANADIAN FISHING VESSEL APPROXIMATELY 18 NM SOUTHWEST OF CAPE RAY, NEWFOUNDLAND, ON MAY 3, 1989.

REPORT No. 545.

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REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE COLLISION BETWEEN THE POLISH VESSEL "ZIEMIA OPOLSKA" AND THE CANADIAN FISHING VESSEL "CAPE FOURCHU" AND SUBSEQUENT SINKING OF THE CANADIAN FISHING VESSEL APPROXIMATELY 18 NM SOUTHWEST OF CAPE RAY, NEWFOUNDLAND, ON MAY 3, 1989

Particulars of Vessel

Name	"CAPE FOURCHU"
Port of Registry	Halifax, N.S.
Flag	Canadian
Official Number	800493
Call Sign	VY3823
Gross Tonnage	992
Net Tonnage	507
Length	49.9 m
Breadth	11.9
Depth	6.04
Draught (at time of casualty)	F. 4.5 A. 4.8
Type	Stern Trawler
Built	1982, Halifax, N.S.
Propulsion	One Krupp 8 cylinder diesel engine 3000 BHP, driving a single controllable pitch propeller
Cargo	450,000 lbs. of red fish
Crew	16
Guest	1
Classification	Canadian Steamship Inspection
Owner	National Sea Products Halifax, Nova Scotia

Navigating Equipment

"CAPE FOURCHU"

Radar (1)	Atlas 4101
Radar (2)	Atlas 4500
Loran 'C' (1)	Decca 1024
Loran 'C' (2)	Epsco XL
VHF (1)	Sailor
VHF (2)	Mariner
SSB (2)	Mariner
Gyro Compass	Sperry
Compass	Magnetic
Plotter	Decca 10350
Fish Finder	Atlas 701
Net Sounder	Atlas 871
Auto Pilot	Decca
Chart in use	4015

Particulars of Vessel

Name	"ZIEMIA OPOLSKA"
Port of Registry	Szczecin
Flag	Poland
Lloyds Number	7334254
Call Sign	SQBE
Gross Tonnage	15,667
Net Tonnage	8,527
Length	185.1 m
Breadth	22.8

Depth	14.15
Draught (at time of incident)	F. 8.67 m A. 9.66 m
Type	Bulk Carrier, 7 holds, ice strengthened
Built	1973, 'Georgi Dimitrov' Shipyard, Varna
Propulsion	One Sulzer, 7 cylinder, Diesel Engine 11,200 BHP, driving a single fixed pitch propeller
Cargo	19,819.361 MT, Barley
Crew	31
Passengers	nil
Classification	Polish Registry
Owner	Żegluga Polska SA-Szczecin Malopolska 44 Poland
Local Agent	Lorway Shipping Co., Sydney, N.S., Canada

Navigation Equipment

"ZIEMIA OPOLSKA"

Radar (1)	Unitra Radwar SRN 745 (10 cm)
Radar (2)	Unitra Radwar SRN 743 (3 cm)
ARPA	Unitra Radwar 009
Loran C	Taiyo TL-828
VHF (1)	Unitra Radmor
VHF (2)	Unitra Radmor
SSB	Unitra Radmor
Gyro Compass	C. Plath
Compass	C. Plath
Auto Pilot	VED Schiffs Elektronik

Direction Finder	Unitra Radmor
Echo Sounder (1)	Radmor
Loran C	Taiyo
Decca	Decca Navigator MK 21
Sat-Nav	Magnavox
Omega	Omega Navigation Receiver
Speed Log	C. Plath
Course Recorder	C. Plath
Chart in Use	Admiralty 1134

Description of Vessels

The **"CAPE FOURCHU"** was a typical stern trawler used in Canada's Atlantic offshore fishery. She was of steel construction, with a single controllable pitch propeller, built and inspected in accordance with the Large Fishing Vessel Inspection Regulations. Her superstructure, including the wheel-house, was located forward, a fish hold midship and a large ramp aft for hauling the trawl.

The **"ZIEMIA OPOLSKA"** is a medium size bulk carrier of steel construction, ice strengthened with seven cargo holds. Her superstructure, including the wheel-house and engine-room are located aft. She has a single fixed pitch propeller.

Background

NOTE: All times in this report are expressed in Universal Co-ordinated Time (UTC) unless otherwise stated.

All references to the Canada Shipping Act in this report refer to Chapter S-9-1985 of the Revised Statutes of Canada.

On the afternoon of May 3, 1989, the Canadian stern trawler "CAPE FOURCHU" and the Polish bulk carrier "ZIEMIA OPOLSKA" were in collision in the Cabot Strait, during reduced visibility in fog. Shortly after the collision, the "CAPE FOURCHU" sank in approximate position Lat. 47°22'N., Long. 59°33'W.

The "CAPE FOURCHU" had completed fishing in the Cabot Strait and set her course on South by gyro compass automatic steering, full speed, bound for Lunenburg, N.S.

The "ZIEMIA OPOLSKA" was enroute from Port Cartier, Quebec to Gdynia, Poland, via the Cabot Strait. The vessel was steaming on a course of 110° T and on gyro compass automatic steering, at full speed.

Prior to the collision both vessels had their radars and VHF radios in operation and were in radio communication with Port aux Basques Traffic and each other. The traffic centre assisted both vessels in identifying each other, as well as their positions, courses and speeds.

At 1935 the "ZIEMIA OPOLSKA" advised the "CAPE FOURCHU" to make a starboard turn to avoid crossing ahead. At that time the two vessels were within approximately two miles of each other. The "CAPE FOURCHU" agreed to turn to starboard and altered her course to 244° T and as the distance decreased rapidly between them, the "CAPE FOURCHU" made two more starboard course alterations to 330° T.

At about 1943 May 3, 1989 the bow of the "ZIEMIA OPOLSKA" came in contact with the port quarter of the "CAPE FOURCHU" fracturing her shell plating. After the collision, the "CAPE FOURCHU" lost her watertight integrity and the aft section flooded quickly. The crew, wearing immersion suits, abandoned her into two liferafts and a workboat. Because of the severe stern trim, the master jumped into the water from the bow and was rescued shortly afterwards by the crew of the workboat. He was the last person to abandon the sinking vessel. The "ZIEMIA OPOLSKA" and the fishing trawler "CAPE BALLARD" rescued all men from the liferafts and the workboat, later transferring them to the fishing trawler "CAPE NORTH". They were taken home via the port of North Sydney, N.S.

The "CAPE FOURCHU" sank within 25 minutes after the collision. The "ZIEMIA OPOLSKA" proceeded to North Sydney for survey and inspection. The estimated cost of temporary repairs was approximately $130,000. The estimated replacement value of the "CAPE FOURCHU" was about 10 million dollars Canadian and her fish cargo had an estimated value of one million dollars Canadian.

Narrative

"CAPE FOURCHU"

The "CAPE FOURCHU" was maintaining Atlantic Daylight time (UTC-3 hours); the following times are expressed in UTC.

The Canadian large stern trawler **"CAPE FOURCHU"** left Lunenburg, Nova Scotia, on April 26, 1989 with a crew of 16, bound for a fishing ground in area 4VS off Cape Breton and area 4R off Cape Ray, Newfoundland. After fishing for two days off

Cape Ray, the "CAPE FOURCHU" proceeded to the fishing ground in area 4R, Gulf of St. Lawrence arriving there on the morning of April 29, 1989 and commenced fishing for red fish.

The master and the mate were the navigating officers on board the "CAPE FOURCHU" keeping a 6-hour rotating watchkeeping system. The master's watch extended from 0900-1500 and resumed from 2100-0300; the mate's watch extended from 0300-0900 and resumed from 1500-2100, although both were available if needed.

On the evening of May 2, 1989 a technical consultant aboard the company trawler "CAPE NORTH" was transferred to the "CAPE FOURCHU" to be disembarked upon arrival at Lunenburg.

Weather conditions on the morning of May 3, 1989, were visibility 1-2 miles in rain, light SE wind and calm sea. Just before noon the visibility was reduced to zero in fog.

On May 3, 1989 prior to the departure of the "CAPE FOURCHU" from the fishing ground with a full load of fish, three tows were made that day. At the beginning of the mate's afternoon watch, and while he was engaged in operating the winch to haul back and shoot the fishing gear, the master assisted him for about an hour. Prior to the master leaving the wheel-house, he instructed the mate to follow a specific Loran C line of position while towing the fishing gear, and to maintain a close watch for vessels in the area.

During the afternoon watch, the "CAPE FOURCHU" steamed by the fishing vessels "CAPE NORTH" and the "CAPE BALLARD"; radio communication was established and various manoeuvring arrangements were made between them. Within two hours, the master returned to the wheel-house at about 1900 and instructed the mate to haul back the fishing gear. There was some 15,000 lbs. of red fish in the net and while unloading the catch, the master altered the vessel's course towards Lunenburg, N.S. steering 180° true utilizing the gyro compass automatic steering and increased the pitch to 'full ahead'. The engine was on wheel-house control. The average full speed of the "CAPE FOURCHU" was 12.5 knots.

At 1920 the Polish bulk carrier "ZIEMIA OPOLSKA" reported to Port aux Basques traffic on the VHF radio, channel 14 the following information:

Position: 20 miles off Cape Ray
Course : 110° True
Speed : 13.5 knots

At 1922 the "CAPE FOURCHU" also called Port aux Basques traffic on the VHF radio, channel 14 with ETA Lunenburg at midnight on May 4, 1989 and reported the following information:

Position: 16 miles off Cape Ray
Course : 180° True
Speed : 11 knots

The information received from both vessels was to be passed on to Ecareg Canada. After both vessels completed the reporting requirements, they switched their VHF radios back to channel 16.

Shortly after reporting to Port aux Basques traffic, the master of the "CAPE FOURCHU" handed over the watch to the mate and proceeded to the fish processing area to inspect the final loading. While the deck-hand on watch was engaged in cleaning fish, the officer of the watch was assisted by a technical consultant who holds a Skipper Fishing Qualifications from the U.K. The ship's two radars were in operation, the appropriate navigation lights were lit and fog signals were sounded.

At 1932 the "ZIEMIA OPOLSKA" made a radio broadcast on the VHF radio, Channel 16, inquiring about a vessel some 3 miles on her port bow. Upon hearing the transmission from the "ZIEMIA OPOLSKA", Port aux Basques Traffic called the "CAPE FOURCHU", relayed the other vessel's course and speed, and requested her to establish radio communication with the "ZIEMIA OPOLSKA".

After establishing radio communication with one another on the VHF radio, Channel 6, the mate of the "CAPE FOURCHU" understood that the "ZIEMIA OPOLSKA" was requesting a starboard course alteration and assumed that she was carrying out a radar plot on his vessel. Initially, at 1930, the radar target of the "ZIEMIA OPOLSKA" was bearing slightly forward of the "CAPE FOURCHU'S" starboard beam. At 1937 the distance between the two vessels was about 2 miles. The "CAPE FOURCHU" turned 60° to starboard and proceeded on a course of 244° T.

In an attempt to avoid a collision at a distance of less than one mile and being uncertain of what action the other vessel had taken, the mate of the "CAPE FOURCHU" decided to proceed in an opposite direction to the "ZIEMIA OPOLSKA". A starboard course alteration was made to a new heading of about 290° T. Shortly afterwards the radar target of the "ZIEMIA OPOLSKA" was dissipated momentarily between the sea clutter, then it was found on the port side at an estimated distance of one-half mile. The mate instructed the technical consultant to proceed to the port wing, to listen and watch for the "ZIEMIA OPOLSKA". At about the same time, a final starboard course alteration was made which brought the ship on a course of approximately 330° T, and perhaps beyond.

Shortly afterwards the technical consultant sighted the "ZIEMIA OPOLSKA" on the port side, reported it to the mate

and requested 'Full Astern'. Once the mate sighted the "ZIEMIA OPOLSKA'S" bow appearing out of the fog, the pitch was changed momentarily to 'Astern'. Realizing that the bow of the other vessel would collide with the port side of the "CAPE FOURCHU" wheel-house, the pitch was altered again to 'Full Ahead'. With the exception of the last alteration of the pitch control seconds prior to the collision, no other reduction in speed was made.

The bow of the "ZIEMIA OPOLSKA" collided with the port quarter of the "CAPE FOURCHU" at an angle of impact of approximately 90°. Immediately after the collision the pitch was placed in the neutral position.

The time of the collision logged on board the "CAPE FOURCHU" was 1945, May 3, 1989, in position Lat.47°22'N., Long.59°33'W. The weather was reported on board as follows:

Wind	Southwest 20 knots
Visibility	Less than one cable
Sea State	Calm
Wave Height	1.2 metres
Air Temperature	0°C
Sea Temperature	+2°C

"ZIEMIA OPOLSKA"

On May 3, 1989 the "ZIEMIA OPOLSKA" was maintaining Eastern Daylight Saving Time (UTC - 4 hours) but, as stated, the following times are expressed in UTC.

The Polish bulk carrier "ZIEMIA OPOLSKA" departed Port Cartier anchorage on May 2, 1989, with a crew of 31 including the master on board, and a cargo of barley. Her destination was Gdynia, Poland, via the Cabot Strait. Shortly after departure the main engine was ordered full ahead at a service speed of 13.5 knots.

The navigation on board the "ZIEMIA OPOLSKA" was carried out by the first, second and third officers, with the master on call, and watch times were ship-board time. Each navigating officer stood a rotating sea watch of four hours on and eight hours off. The third officer stood the 1200-1600 watch, the second officer 1600-2000 watch and the chief officer 2000-2400 watch.

The passage through the Gulf of St. Lawrence was uneventful until May 3, 1989 following the outbound routing scheme and reporting her progress to the appropriate VTS centres within the zone.

During the forenoon watch of the third officer, weather

was described as moderate visibility 4-5 miles and southerly wind force 4-5 Beaufort scale. By noon, the visibility was reduced in fog, the main engine was placed on 'standby' and the automatic fog signal was switched on. The master came to the wheel-house at the beginning of the forenoon watch and remained until the collision occurred, except during mealtime. The Loran C noon position of the "ZIEMIA OPOLSKA" was Latitude 47°47.8'N., Longitude 60°39.7'W. She was on gyro compass automatic steering, on a course of 116° gyro, 118° true (gyro error 2° east).

Upon approaching the termination of the Cabot Strait Traffic Separation Lane at 1833, utilizing the automatic gyro steering, the course was altered to 108° gyro, 110° true in a position 18.3 miles off St. Paul Island.

At 1920 the east bound "ZIEMIA OPOLSKA" reported her course, speed and position off Cape Ray to ECAREG Canada via Port aux Basques VTS on VHF channel 14. Minutes later the "CAPE FOURCHU" also reported that she was southbound to Lunenburg, Nova Scotia and her course, speed and position to Port aux Basques VTS. Once both vessels reported to Port aux Basques VTS on the appropriate assigned VTS frequency for the area, each vessel was instructed to return and monitor the VHF distress frequency channel 16 (156.8 MHZ).

At 1932 the "ZIEMIA OPOLSKA" made a general radio broadcast on the VHF channel 16, inquiring about a vessel some 3 miles on her port bow. At that time the target of the "CAPE FOURCHU" was approaching from 30° on the port bow of the "ZIEMIA OPOLSKA", crossing her path in a southerly direction. Port aux Basques VTS responded immediately to "ZIEMIA OPOLSKA'S" general broadcast by identifying the nearby vessel as the "CAPE FOURCHU", established radio communication and relayed the position, course and speed of the "ZIEMIA OPOLSKA" to the "CAPE FOURCHU". While both vessels were communicating with each other on the VHF channel 6, a request was made by the "ZIEMIA OPOLSKA" to the "CAPE FOURCHU" to make a starboard course alteration (to make two whistles).The "CAPE FOURCHU" understood and carried out the request of a starboard course alteration but the last part of the transmission (to make two whistles) apparently was not heard by the "CAPE FOURCHU". The VHF radio channel 6 was used briefly by both vessels to discuss their manoeuvring arrangements, then returned to channel 16. Until the collision occurred, no further radio communication was carried out between the "CAPE FOURCHU" and the "ZIEMIA OPOLSKA".

Some five minutes later, at a distance of less than two miles, the radar target of the "CAPE FOURCHU" was ahead of the "ZIEMIA OPOLSKA" moving in a southerly direction. Shortly afterwards the situation appeared to stablize as the "CAPE

FOURCHU" was observed some 10° on the starboard bow of the "ZIEMIA OPOLSKA" at a distance of 0.8 miles and proceeding in the same southerly direction. As the radar range was reduced to three miles, extensive sea clutter appeared on the radar screen, and the master of the "ZIEMIA OPOLSKA" was unable to positively identify the target of the "CAPE FOURCHU" among the clutter.

The "CAPE FOURCHU" appeared out of the fog some 5° on the starboard bow of the "ZIEMIA OPOLSKA" at a distance of about 50 m crossing ahead in a northerly direction. Attempting to avoid the collision, the master ordered the helmsman to switch the auto pilot from automatic to hand steering mode, and moments later, he ordered the helm hard to starboard. Shortly thereafter the bow of the "ZIEMIA OPOLSKA" came in contact with the port quarter of the "CAPE FOURCHU" at an angle of impact of approximately 90°, fracturing several shell plates above and below the waterline.

The time of the collision logged on board the "ZIEMIA OPOLSKA" was 1942, in position Latitude 47°22.9'N., Longitude 59°33.5'W.

The weather, in the daylight conditions which existed, was reported on board as follows:

Wind	Southerly 11-16 knots
Visibility	one cable
Sea State	Calm
Wave Heights	2-4 metres
Air Temperature	+6°C
Sea Temperature	0°C

When the collision occurred, the "ZIEMIA OPOLSKA" was under the conduct of the master and her main engine was operating at 'full ahead'.

Events Following the Collision

After the collision the engines of both vessels were placed on 'stop' and damage inspection was carried out by the crews without delay. As soon as both vessels were stopped in the water, the "ZIEMIA OPOLSKA" observed the "CAPE FOURCHU" some 6 to 8 cables aft on her radar. The "ZIEMIA OPOLSKA" reported a collision with a small fishing vessel to Port aux Basques traffic at 1944. At about the same time, the "CAPE FOURCHU" also sent a distress call and message on SSB Radio Channel 2182, which was acknowledged by Sydney Coast Guard Radio Station and relayed to RCC, Halifax. A 'mayday relay' broadcast was carried out by Sydney Coast Guard Radio.

The company trawlers "CAPE NORTH" and "CAPE BALLARD" were

trawling near the scene some 3 to 4 miles away. They suspended their fishing operations and immediately responded to the scene. Numerous other vessels also responded, including the "ATLANTIC FREIGHTER", "CICERO", "IMPERIAL BEDFORD", "ATLANTIC ENTERPRISE", "NEWFOUNDLAND BOUNTY", and "NEWFOUNDLAND BREAKER", etc.

Shortly after the impact, seawater penetrated through the fractured shell plating on the port quarter of "CAPE FOURCHU", flooding the engine-room and the net storage compartment allowing the stored nets to escape into the sea.

The cursory damage inspection revealed that the situation was deteriorating quickly and that it was considered impossible to save the "CAPE FOURCHU". The crew was ordered to don immersion suits, then to proceed to their lifeboat stations and prepare to launch the liferafts and the workboat. The mate was in charge of the starboard lifeboat station and the master was in charge of the port side. All hands, except the master, abandoned the sinking vessel in an orderly manner utilizing the Jacob's ladders located on either side.

The master of the "CAPE FOURCHU" made his last radio transmission to the "CAPE NORTH" then jumped into the water from the stem. He was rescued shortly afterwards by the three men in the work boat and all four were taken safely aboard the "ZIEMIA OPOLSKA". The "CAPE BALLARD" rescued the remainder of the crew from the two liferafts and they were later transferred to the "CAPE NORTH". The four survivors aboard the "ZIEMIA OPOLSKA" were also transferred to the "CAPE NORTH".

The "CAPE FOURCHU" sank within approximately 25 minutes after the collision, in approximately the same reported position of the collision in about 255 fathoms of water.

The "CAPE NORTH" landed all survivors safely at North Sydney, N.S. and the "ZIEMIA OPOLSKA" arrived at the same port on May 4, 1989, for inspection and temporary repairs to her bow.

Analysis

1. Certificates of Vessels Involved in the Collision

At the time of the collision, all certificates of the vessels "CAPE FOURCHU" and "ZIEMIA OPOLSKA" were valid.

2. Damage and Repairs

"ZIEMIA OPOLSKA"

The starboard side below the sheer plate of the stem was

holed in two places and the shell plating was heavily set in in two places. The shell plate, starboard side, above sheer was heavily set in and torn for a length of approximately 132 cm between frames 5 and 7. The port side bulwark was torn and split between frames 9 and 12.

The forecastle deck was holed at frame 7. The deep frame in the engine-room workshop, port side, was heavily set in, including associated frames.

Temporary repairs were carried out by the crew of the "ZIEMIA OPOLSKA" and were inspected by Ship Safety Branch of the Coast Guard, as well as the Classification Society. The vessel was allowed to sail to Poland where permanent repairs were to be carried out at a later date.

3. Weather Conditions

The following hourly weather observations were recorded at the Atmospheric Environment Service Station, Port aux Basques, some 20 miles from the collision position, on May 3, 1989:

Time UTC	Wind Speed/Direction	Visibility
0000	East 15 kts.	10 mi.
0100	East 15 kts. Gusts 24	1 mi. in fog
0200	East 15 kts. Gusts 23	1 mi. very light rain showers
0300	East 15 kts. Gusts 25	1 mi. very light rain showers
0400	East 14 kts. Gusts 22	4 mi. light rain/fog
0500	East 15 kts. Gusts 25	4 mi. light rain/fog
0600	East 15 kts. Gusts 25	3 mi. light rain/fog
0700	East 15 kts. Gusts 27	3 mi. light rain/fog
0800	East 17 kts. Gusts 30	3 mi. light rain/fog
0900	East 16 kts. Gusts 30	1/2 mi. light rain/fog
1000	East 20 kts. Gusts 35	3 mi. light rain/fog
1100	East 20 kts. Gusts 34	2 mi. moderate rain/fog
1200	East 18 kts. Gusts 30	2 mi. moderate rain/fog
1300	East 16 kts. Gusts 25	2 mi. moderate rain/fog
1400	Southeast 12 kts.	3 mi. light rain/fog
1500	East 12 kts.	1/2 mi. fog
1600	East 10 kts.	1/2 mi. fog
1700	East Southeast 8 kts.	1/2 mi. fog
1800	East 4 kts.	1/2 mi. fog
1900	East 8 kts.	1/2 mi. fog
2000	East 10 kts.	1/2 mi. fog
2100	East 15 kts.	1/2 mi. fog
2200	East 12 kts.	1/2 mi. fog
2300	East 14 kts.	1/2 mi. fog
2400	East 9 kts.	1/4 mi. fog

It is evident that on the day of the collision fog persisted through the afternoon and the evening thus reducing considerably the visibility in the Cabot Strait. Sea conditions were calm with wave heights of about 2 metres, light wind, air temperature 5-6°C and sea temperature 2°C.

4. Speed of Vessels

Although there was restricted visibility in fog, the "CAPE FOURCHU" and the "ZIEMIA OPOLSKA" were both steaming at full speed ahead. The main engine pitch of the "CAPE FOURCHU" was on wheel-house control and the main engine of the "ZIEMIA OPOLSKA" was on bridge control, with the telegraph placed on 'standby'.

The International Collision Regulations, Part B, Steering and Sailing Rules, Section 1 - Conduct of Vessels in any Condition of Visibility, Rule 6 - Safe Speed, states, in part:

> Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.
>
> In determining a safe speed the following factors shall be among those taken into account:
>
> (a) By all vessels:
>
> (i) the state of visibility.
> (ii) the traffic density including concentration of fishing vessels or any other vessels
> (iii) the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions.
>
> (b) Additionally, by vessels with operational radar:
>
> (i) the characteristics, efficiency and limitations of the radar equipment...
>
> Rule 19 of the Collision Regulations states, in part:

(a) This rule applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.

(b) Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate manoeuvre.

The fishing vessel's owners' standing orders for masters and watchkeeping officers, dated January 1982, state:

> when visibility shuts down and weather is thick, if in close proximity to land, reduce speed and start sound signals, then call the master.

5. Automatic Pilot

The recommended Code of Nautical Procedures and Practices Part II - Recommendation on Operational Guidance for Officers in Charge of a Navigational Watch, states:

> The officer of the watch should bear in mind the necessity to comply at all times with the requirements of the Steering Appliances and Equipment Regulations on the use of the automatic pilot. He should take into account the need to station the helmsman and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner. With a ship under automatic steering it is highly dangerous to allow a situation to develop to the point where the officer of the watch is without assistance and has to break the continuity of the look-out in order to take emergency action. The change-over from automatic to manual steering and vice-versa should be made by, or under the supervision of, a responsible officer.

This code was adopted at an International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978.
Moments prior to the collision, the master of the"ZIEMIA OPOLSKA" ordered the helmsman to switch the auto-pilot from automatic to hand steering and, moments later, hard to starboard.

The officer of the watch on board the "CAPE FOURCHU"

utilized only the automatic steering to manoeuvre the vessel until the collision occurred. During that time no helmsman was available in the wheel-house.

6. Fog Signals

As power-driven vessels making way, both the "CAPE FOURCHU" and the "ZIEMIA OPOLSKA" were required to comply with Rule 35(a). Rule 35 of the Collision Regulations, Sound Signals in Restricted Visibility, states, in part:

> In or near an area of restricted visibility, whether by day or night, the signals prescribed in this Rule shall be used as follows:
>
> (a) A power-driven vessel making way through the water shall sound at intervals of not more than 2 minutes one prolonged blast.

The "CAPE FOURCHU" and "ZIEMIA OPOLSKA" were sounding the appropriate signals for the prevailing conditions prior to the collision; their wheel-house doors were open but neither vessel heard the fog signal of the other.

After the collision, and while some of the "CAPE FOURCHU" crew were in the liferafts and under the direction of the mate, one person was assigned the responsibility of blowing the whistle intermittently.

7. Machinery and Navigation Appliances

Prior to the collision, the navigation appliances and steering gear on board both vessels were in working order and there was no reported malfunction of machinery or equipment.

8. Radar

The "ZIEMIA OPOLSKA" was equipped with two radars (3 and 10 cm), one located on each side of the wheel-house. The vessel was also fitted with an ARPA (Automatic Radar Plotting Aid), which is an advanced computer controlled plotting system. It was reported that the ARPA was switched on, but it was not in use prior to the collision, due to the close proximity of the vessels to each other and that the master was aware of the "CAPE FOURCHU's" course and speed after his radio communication with Port aux Basques VTS. Both radars were operating satisfactorily in the relative motion gyro stablized, 'north-up' presentation.

The International Convention for the Safety of Life at Sea, 1974, Chapter V, "Safety of Navigation", Regulation 12, states in part:

> An automatic radar plotting aid shall be fitted on ships constructed before September 1, 1984, that are not tankers, if of 15,000 tons gross tonnage and upwards, but less than 20,000 tons gross tonnage, by September 1, 1988.

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, Annex I, Minimum Requirements for Training in the use of Automatiac Radar Plotting Aids (ARPA) states in part:

> Masters, chief mates and officers in charge of a navigational watch on ships carrying ARPA shall be trained in the fundamentals and operation of ARPA equipment and the interpretation and analysis of information obtained from this equipment.

The master of the "ZIEMIA OPOLSKA" was observing the starboard radar and the officer of the watch was observing the port radar. Initially, the target of the "CAPE FOURCHU" was observed at a distance of about 4 miles, bearing 35° on the port bow and within minutes after establishing radio communication, the "CAPE FOURCHU" was at a distance of about 3 miles, bearing approximately 30° on the port bow, following a southerly course.

At 1935 the target of the "CAPE FOURCHU" appeared dead ahead and maintaining a southerly course. About three minutes later her target was some 10-15° on the starboard bow at a distance of 8 cables. From the radar observation of the master of the "ZIEMIA OPOLSKA", the "CAPE FOURCHU" did not make a starboard course alteration and she had passed ahead of his vessel on the same southerly course. According to the "ZIEMIA OPOLSKA", the risk of collision did not exist at this time, although no actual plotting was being performed. As the distance decreased, the target of the "CAPE FOURCHU" was lost in the sea clutter. There was no course alteration or speed reduction made by the "ZIEMIA OPOLSKA" until the "CAPE FOURCHU" was seen visually, heading in a northerly direction.
The "CAPE FOURCHU" was equipped with two 3 cm radars; both radars were operating satisfactorily and in the relative motion unstabilized 'ship's head up' display prior to the collision.

After establishing radio communication with Port aux Basques VTS and the "ZIEMIA OPOLSKA", the officer of the

watch aboard the "CAPE FOURCHU" assumed the "ZIEMIA OPOLSKA" was plotting his progress. He positively identified the target of the "ZIEMIA OPOLSKA" among three targets appearing on the radar display within a distance of 3 to 4 miles. The target of the "ZIEMIA OPOLSKA" was at a distance of about 3 miles slightly forward of the "CAPE FOURCHU's" starboard beam and her radar echo was described as very weak.

A target ahead was identified as the "CAPE NORTH"; the other target was on the port beam and presumed to be the "CAPE BALLARD".

At a distance of about 2 miles and with the aid of the automatic gyro steering, an approximate 60° starboard course alteration was made to a new heading of 244°(G). The gyro error aboard the "CAPE FOURCHU" was stated to be 'nil'. After the course alteration, the officer of the watch realized that the distance between the two vessels was decreasing quickly and at a distance of less than one mile, another starboard course alteration was made to a course of about 290°(T) bringing the "CAPE FOURCHU" onto a reciprocal course to the "ZIEMIA OPOLSKA".

The final starboard course alteration occurred in the minute preceding the collision to a course of at least 330°(G). The alteration was effected by the officer of the watch quickly turning the auto-pilot indicator to starboard.

As the distance between the two vessels decreased to one-half mile, the target of the "ZIEMIA OPOLSKA" was lost momentarily in the sea clutter. After some tuning of the sea clutter control, the target was observed on the radar on the port side and was seen visually shortly afterwards.

The radar cursor was the main tool used on board both vessels to assist in determining each other's progress and if the risk of collision existed. The Regulations for Preventing Collisions at Sea, Rule 7, Risk of Collision, requires that assumptions should not be made on the basis of scanty information, especially scanty radar information.

9. Action to Avoid Collision

The "ZIEMIA OPOLSKA" maintained her course of 110°(T) and full speed up to moments prior to the collision, then a hard to starboard course alteration was made to avoid colliding with the "CAPE FOURCHU".

The "CAPE FOURCHU" made a succession of large alterations of course to starboard, without proper assessment of the situation or reduction of speed, which led to the development of a close quarters situation.

Although there was extensive sea clutter within a mile range on the radar displays of both ships, neither the "CAPE FOURCHU" nor the "ZIEMIA OPOLSKA" attempted to take early action to avoid the collision by ensuring the approaching target was kept out of the clutter zone or by reducing the speed or taking all way off until the danger of collision was over.

The Regulations for Preventing Collisions at Sea require that in any condition of visibility, and in order to avoid collision, every vessel shall at all times proceed at a safe speed so that effective action can be taken appropriate to the prevailing circumstances and conditions: Rule 6 (a) (b).

The same Regulations further stipulate that any action taken to avoid collision, be positive, made in ample time and with due regard to the observance of good seamanship; Rule 8 (a).

A calculation made after the casualty shows that, had the "CAPE FORCHU" maintained her course and speed, the estimated closest point of approach of the two vessels would have been approximately one mile (See annex 1).

10. Radio Communications

The "CAPE FOURCHU" and "ZIEMIA OPOLSKA" were equipped with VHF radios located in the wheel-houses and maintained continuous listening watches on the International Distress Frequency 156.8 MHZ (Channel 16 VHF). Prior to the collision the two vessels were communicating with Port aux Basques VTS and with each other to determine their intentions.

It would appear that there was some misunderstanding between the two vessels. Since the "CAPE FOURCHU" was on the port side, forward of the "ZIEMIA OPOLSKA's" beam, the starboard course alteration requested of the "CAPE FOURCHU" was to make her proceed around the stern of the "ZIEMIA OPOLSKA" thus avoid crossing her path. However, apparently, this manoeuvre was not clear to the officer in charge of the "CAPE FOURCHU" because after the first starboard course alteration, he assumed that the "ZIEMIA OPOLSKA" would be passing astern of the "CAPE FOURCHU", and that the situation was safe. The starboard course alteration made by the "CAPE FOURCHU" toward the "ZIEMIA

OPOLSKA" resulted in rapidly decreasing the distance between them. Unfortunately, neither vessel clarified the intention of the other especially after the first course alteration was made. From the scanty radar observation, the "ZIEMIA OPOLSKA" assumed that the "CAPE FOURCHU" did not make any course alteration and decided to cross ahead of her path and that the situation was safe.

The VHF Radiotelephone Practices and Procedures Regulations, under the heading 'Navigation Safety Call' require that every ship, other than a dredge or floating plant, that is maintaining a listening watch pursuant to Section 9 (listening watch), shall make a navigation safety call on the frequency on which it is maintaining the listening watch:

(a) when risk of collision with another ship is deemed to exist under those provisions of the Collision Regulations that apply in the area being navigated by the ship;

(b) when the navigation safety call of another ship indicates that a close quarters situation may develop...

While the "ZIEMIA OPOLSKA" was in direct radio communication with the "CAPE FOURCHU" on the VHF radio Channel 6, the following transmission was made by the "ZIEMIA OPOLSKA" and recorded by the Coast Guard VTS Port aux Basques, in part:

'...your course is 180° true; I know that you are crossing my course, will it be possible to change your course to starboard, to make two whistles'.

The "CAPE FOURCHU" copied all the transmission except the last part '...to make two whistles'. The transmission of the "ZIEMIA OPOLSKA" (to make two whistles) is considered ambiguous because her intention was to pass the "CAPE FOURCHU" port to port. The International Regulations for Preventing Collisions at Sea, 'Manoeuvring and Warning Signals Rules' gives the interpretation that if a vessel signals two short blasts, it means that she is altering her course to port. The two whistles was probably an interpretation of language used in the St. Lawrence Seaway system.

11. Port aux Basques VTS

The "ZIEMIA OPOLSKA" and "CAPE FOURCHU" reported their positions, courses and speed within two minutes of each other to Port aux Basques VTS on the designated channel.

Within 12 minutes, the "ZIEMIA OPOLSKA" made a general broadcast inquiring about a fishing vessel some 3 miles on her port bow. Although both vessels were outside Port aux Basques VTS zone, the duty marine traffic regulator immediately called the "CAPE FOURCHU" inquiring if they observed a vessel 3 to 4 miles on their starboard side and relayed all the pertinent information about the "ZIEMIA OPOLSKA". He also requested the "CAPE FOURCHU" to establish bridge to bridge communication with the "ZIEMIA OPOLSKA".

The "CAPE FOURCHU" and "ZIEMIA OPOLSKA" were outside Port aux Basques traffic radar coverage prior to and after the collision occurred. VTS passed the information reported and assisted in expediting radio communication between the two vessels.

12. a) **Flooding of "CAPE FOURCHU"**

The impact of the collision resulted in fracturing the port quarter shell plating of the "CAPE FOURCHU", approximately between frame spaces 5 and 10, downflooding the engine-room and the net storage compartment.

As a precautionary measure, after the collision the salt water intake line for the two fish wash pumps was closed but the pumps remained in operation, internally pumping from the vessel, and the bilge pump was activated.

Prior to the engine-room staff leaving the engine-room, the fracture was seen on the port side, aft of the boiler, slightly ahead of the engine-room casing, and the rate of flooding was described 'like a sheet of water pouring through' thus no damage control could be taken. The "CAPE FOURCHU" sank within 25 minutes after the collision.

b) **Status of Doors and Ingress of Water - "CAPE FOURCHU"**

Lower deck, (processing deck), door to steering gear space open. Door to port side net store, closed. Engine-room door, port side was open when collision occurred; however, was closed by the chief engineer before the vessel was abandoned.
Upper deck - both engine-room casing doors port and starboard were closed.

c) **Fuel on Board "CAPE FOURCHU"**

The following was the status of fuel tanks at the time of the collision:

No.1 port and starboard	-	20.3 tons
No.2 port and starboard	-	empty
No.3 port and starboard	-	37 tons
No.4 port and starboard	-	8 tons
No.4 center	-	26.8 tons

The estimated total amount of diesel fuel on board the "CAPE FOURCHU" at the time of sinking was approximately 92.1 tons plus 8 tons of lube oil.

Two broken oil slicks were observed in the area but contained no heavy concentration. No oil was seen rising to the surface and there were no traces of other pollution within a 10-mile radius of the main slick.

13. Watch Arrangements Aboard "CAPE FOURCHU"

There was a total complement of 17 persons on board the "CAPE FOURCHU" which included the master and mate in charge of the deck watch; the chief and second engineer in charge of the engine-room; one guest (technical consultant); one cook and eleven deck-hands, including the bosun.

While the vessel was steaming to and from the fishing grounds, the deck-hands were assigned a rotating bridge watch. During fishing operations, this procedure was changed to allow the deck-hands to process and store their catch. This was achieved by assigning the deck crew to a single or double watch system. A single watch consisted of 5 persons and the double watch 10 persons. On the day of the collision, the deck crew was on a single watch system which had started at 1200 and ended at 1800. It is not considered that fatigue played a part in this collision.

14. Experience and Qualifications

"CAPE FOURCHU"

The master of the "CAPE FOURCHU" holds a Canadian Fishing Master Class I Certificate issued by the Department of Transport on December 14, 1988, which included the completion of a SEN II Radar Simulator Course in 1988. He has been master since 1981 and aboard the "CAPE FOURCHU" since July 1988. His total seatime is about 17 years.

The mate of the "CAPE FOURCHU" holds a Canadian Fishing Master Class II Certificate issued by the Department of Transport on December 13, 1988. A SEN I - Parts A and B Radar Course was completed in 1988. He has about 5 years experience as mate and his total seatime is approxi-

mately 18 years on board various fishing vessels. He had been aboard the "CAPE FOURCHU" since 1982 and was promoted to bosun/relieving mate in 1986.

Both the master and the mate of the "CAPE FOURCHU" had completed the Marine Emergency Duties Course as required by the Canadian Coast Guard.

The technical consultant, who was assisting the mate during the watch, holds a British Skipper Fishing Boat in all Waters Certificate issued in May, 1960. He has some 20 years experience as master on board fishing vessels and he was not signed on as a crewmember on board the "CAPE FOURCHU".

"ZIEMIA OPOLSKA"

The master of the "ZIEMIA OPOLSKA" holds a Polish Master Foreign Going Certificate of Competency originally issued at Szczecin on May 27, 1967. He attended a Radar Observer Course in 1954 and a two-week Radar Simulator Course in 1978. He joined the "ZIEMIA OPOLSKA" on October 16, 1988, and has been master since 1969 on board various ships. The master's command of the English language was good and it was not considered necessary to use an interpreter in the safety investigation interview.

The second officer, the OOW on duty at the time, holds a Polish Master Foreign Going Certificate of Competency issued at Gdynia on May 14, 1985. He attended a Radar Observer Course in 1972 and a Radar Simulator Course in 1980. He joined the "ZIEMIA OPOLSKA" on March 1, 1989, and has been sailing as deck officer since 1972. He has a good command of the English language and it was not considered necessary to use an interpreter for the safety investigation interview.

The helmsman on duty at the time of the collision is considered a qualified able seaman and has several years experience on board various Polish vessels.

Findings

The collision, under conditions of daylight but heavy fog, between the Canadian stern trawler "CAPE FOURCHU" and the Polish bulk carrier "ZIEMIA OPOLSKA" with the subsequent sinking of the "CAPE FOURCHU" was caused by the non-observance by both vessels of certain provisions of the Collision Regulations.

It would appear that the following were contributing factors:

- neither vessel used her radar equipment to advantage to determine at an early stage if the risk of collision existed;

- neither vessel carried out a radar plot to determine the intentions of the other;

- both vessels made assumptions on the intentions of the other based on scanty information, in particular scanty radar information;

- neither vessel proceeded at a safe speed in fog;

- neither vessel took early positive action to avoid a developing close quarters situation, with due regard to the observance of good seamanship; and

- neither vessel used the VHF radiotelephone to clarify the intentions of the other immediately prior to the collision.

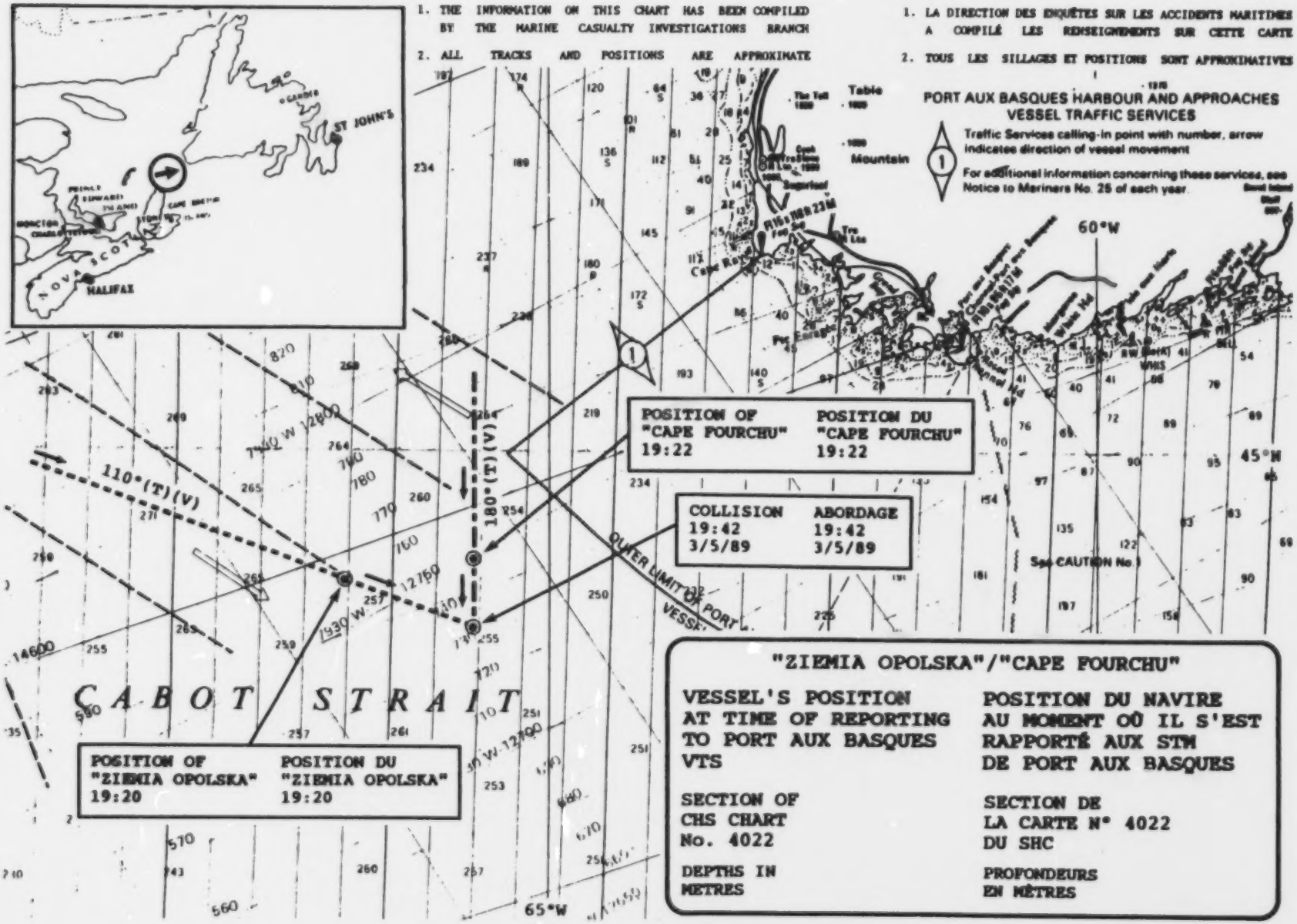
Other Findings

The flooding of the void spaces in the engine-room, and the unsubdivided large processing deck area, contributed to the speedy sinking of the "CAPE FOURCHU".

Based on calculations, had the "ZIEMIA OPOLSKA" not suggested the starboard course alteration to the "CAPE FOURCHU", and if both vessels had maintained their course and speed, they would have passed clear of each other.

Marine Casualty Investigations
110 O'Connor
OTTAWA, ONTARIO
K1A 0N5

September 1990.


1. THE INFORMATION ON THIS CHART HAS BEEN COMPILED BY THE MARINE CASUALTY INVESTIGATIONS BRANCH
2. ALL TRACKS AND POSITIONS ARE APPROXIMATE
1. LA DIRECTION DES ENQUÊTES SUR LES ACCIDENTS MARITIMES A COMPILÉ LES RENSEIGNEMENTS SUR CETTE CARTE
2. TOUS LES SILLAGES ET POSITIONS SONT APPROXIMATIVES
PORT AUX BASQUES HARBOUR AND APPROACHES
VESSEL TRAFFIC SERVICES
Traffic Services calling-in point with number, arrow indicates direction of vessel movement
For additional information concerning these services, see Notice to Mariners No. 25 of each year.
ST JOHN'S
HALIFAX
NOVA SCOTIA
60°W
45°N
65°W
110°(T)(V)
180°(T)(V)
OUTER LIMIT OF PORT VESSEL
See CAUTION No.
CABOT STRAIT
POSITION OF "CAPE FOURCHU" 19:22
POSITION DU "CAPE FOURCHU" 19:22
COLLISION 19:42 3/5/89
ABORDAGE 19:42 3/5/89
POSITION OF "ZIEMIA OPOLSKA" 19:20
POSITION DU "ZIEMIA OPOLSKA" 19:20
"ZIEMIA OPOLSKA"/"CAPE FOURCHU"
VESSEL'S POSITION AT TIME OF REPORTING TO PORT AUX BASQUES VTS
POSITION DU NAVIRE AU MOMENT OÙ IL S'EST RAPPORTÉ AUX STM DE PORT AUX BASQUES
SECTION OF CHS CHART No. 4022
SECTION DE LA CARTE N° 4022 DU SHC
DEPTHS IN METRES
PROFONDEURS EN MÈTRES

ANNEX I APPENDICE I

SKETCH SHOWING TRACKS OF VESSELS LEADING TO COLLISION BETWEEN "CAPE FOURCHU" AND "ZIEMIA OPOLSKA"

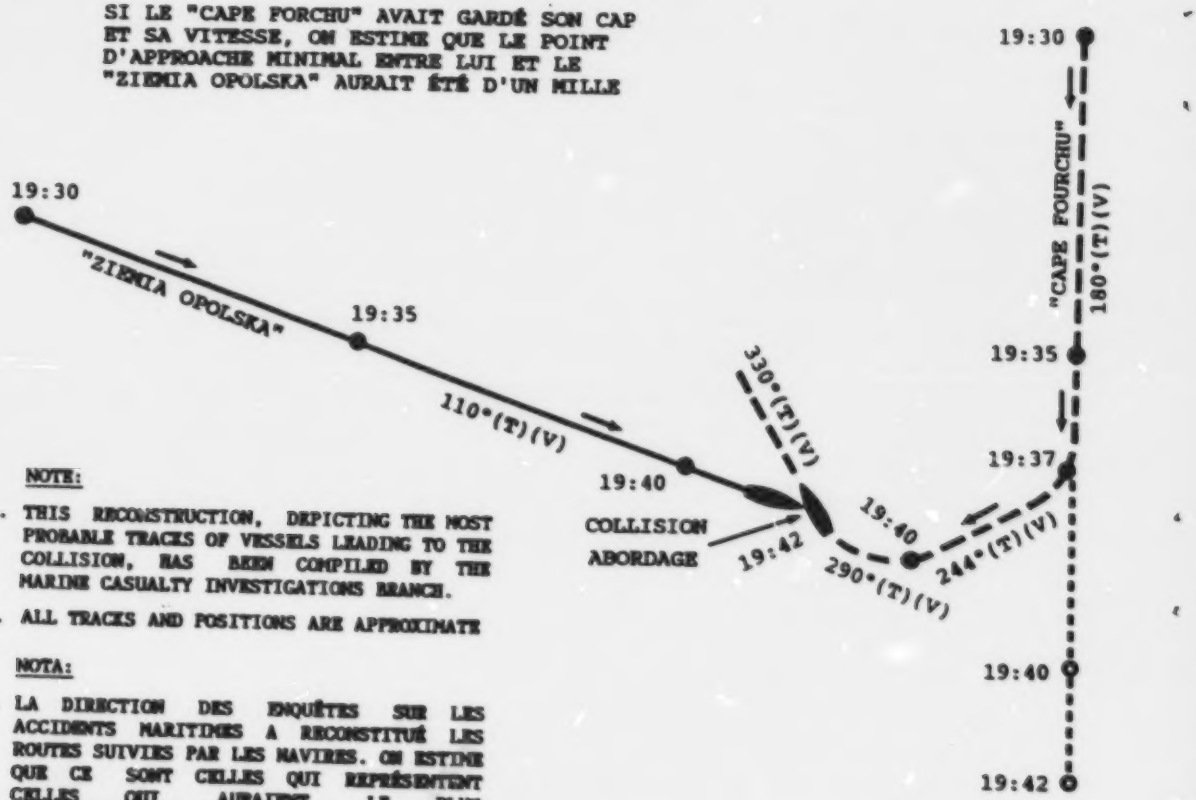
CROQUIS INDIQUANT LES SILLAGES MENANT À L'ABORDAGE DES NAVIRES "CAPE FOURCHU" AND "ZIEMIA OPOLSKA"

SCALE
5 cm - 1 MILE

ÉCHELLE
5 cm - 1 MILLE

HAD THE "CAPE FOURCHU" MAINTAINED HER COURSE AND SPEED, THE ESTIMATED CLOSEST POINT OF APPROACH BETWEEN HER AND THE "ZIEMIA OPOLSKA" WOULD HAVE BEEN ONE MILE

SI LE "CAPE PORCHU" AVAIT GARDÉ SON CAP ET SA VITESSE, ON ESTIME QUE LE POINT D'APPROACHE MINIMAL ENTRE LUI ET LE "ZIEMIA OPOLSKA" AURAIT ÉTÉ D'UN MILLE



NOTE:

1. THIS RECONSTRUCTION, DEPICTING THE MOST PROBABLE TRACKS OF VESSELS LEADING TO THE COLLISION, HAS BEEN COMPILED BY THE MARINE CASUALTY INVESTIGATIONS BRANCH.
2. ALL TRACKS AND POSITIONS ARE APPROXIMATE

NOTA:

1. LA DIRECTION DES ENQUÊTES SUR LES ACCIDENTS MARITIMES A RECONSTITUÉ LES ROUTES SUIVIES PAR LES NAVIRES. ON ESTIME QUE CE SONT CELLES QUI REPRÉSENTENT CELLES QUI AURAIENT LE PLUS VRAISEMBLABLEMENT CONDUIT À L'ABORDAGE.
2. TOUS LES SILLAGES ET POSITIONS SONT APPROXIMATIFS

"ZIEMIA OPOLSKA"

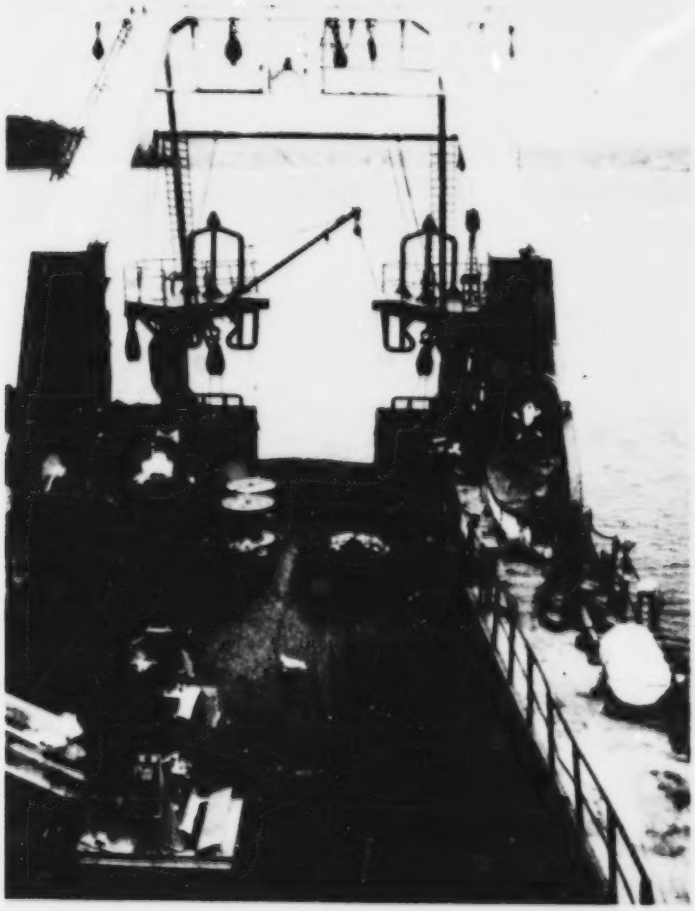
Bow damage.

Avant endommagé.

Damage forecastle head - starboard side.
Dommages au gaillard d'avant - côté tribord

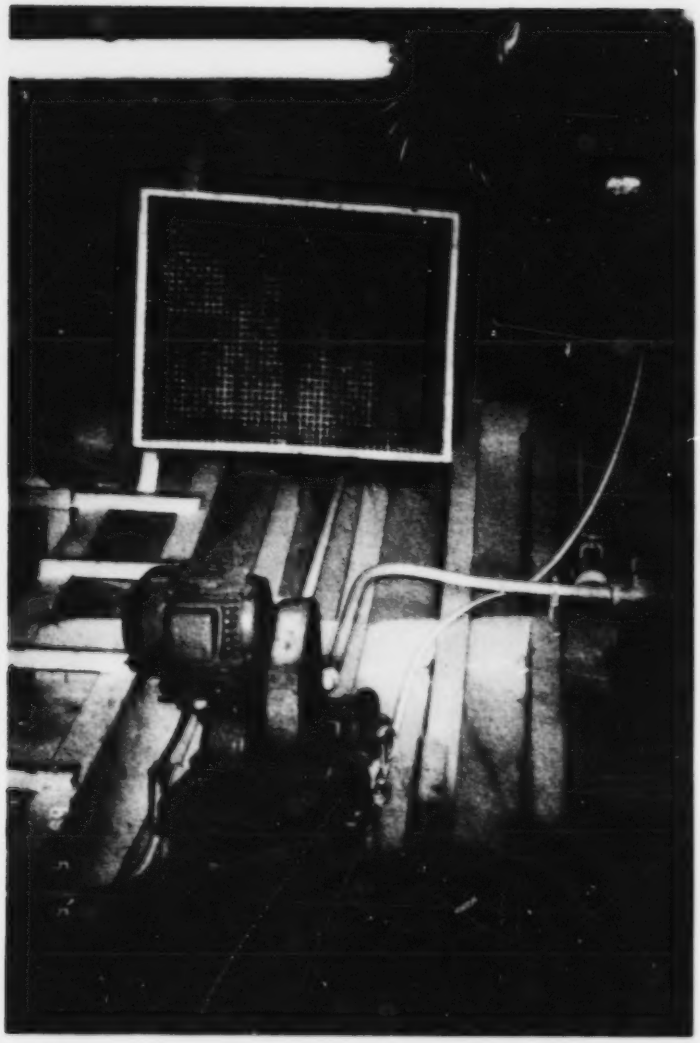
Damage on port side forecastle head.
Dommages au gaillard d'avant bâbord.

"CAPE BALLARD" (similar to "CAPE FOURCHU")
"CAPE BALLARD" (similaire au "CAPE FOURCHU")



Stern ramp.
Rampe arrière

"CAPE BALLARD"



Presumed area of fracture in engine room of "CAPE FOURCHU".
(Similar to "CAPE FOURCHU")

Endroit présumé de la fracture dans la salle des machines du "CAPE FOURCHU".
(similaire au "CAPE FOURCHU")